STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No.	MO-0115339
Owner:	CONOPCO DBA Good Humor Corporation
Address:	PO Box 19007, Green Bay, WI 54307-9007
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	Good Humor-Breyers Ice Cream
Facility Address:	1010 County Line Road, Sikeston, MO 63801
Legal Description:	NE ¼, NE ¼, Sec. 28, T26N, R14E, New Madrid County
Latitude/Longitude:	+3652276/-08932189
Receiving Stream:	St. Johns Ditch & North Cut Ditch (P)
First Classified Stream and ID:	St. Johns Ditch (P) (03138)
USGS Basin & Sub-watershed No.:	(08020201-030003)

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

FACILITY DESCRIPTION

Outfall #001 – Food Processing - SIC #2024 (Biosolids Only)

Activated sludge (pretreatment)/biosolids are land applied.
Design population equivalent is 1,500.
Design wastewater flow is 150,000 gallons per day
Design sludge production is 0.14 MGD, 1,100 dry tons per year.
Sanitary wastes from restroom facilities are discharged directly to the municipal wastewater treatment system without pretreatment.

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

July 7, 2006
Effective Date

Doyle Childers, Director, Department of Natural Resources
Executive Secretary, Clean Water Commission

July 6, 2011
Expiration Date

Gary L. Gaines, P.E., Director, Southeast Regional Director

MO 780-0041 (10-93)

FACILITY DESCRIPTION (continued)

Outfall #001 – Biosolids System Design

Receiving Stream Watershed: A gaining stream setting.

Facility Type: storage and land application of biosolids.

Land Application of biosolids:

Design Volume /year: 50,000,000 gallons
Application area required: 330 acres at design loading (1568 acres total available)
Application rates/acre/year: 151,520 gallons /acre/year; 3.5 dry tons/acre/year (@150 lbs. N/acre)
Maximum field slopes: 3 percent
Equipment type: Tank Truck
Vegetation: row crops (corn @ 150 BU/acre)
Application rate is based on: plant available nitrogen loading rate

Land Application Sites:

Site Number 1: Location: S ½, Sec. 28, T26N, R14E and the E ½, Sec. 33 , T25N, R14E and the W ½, Sec. 34 , T25N, R14E and part of the NW ¼, Sec. 3 , T25W, R14E, and part of the NE ¼, Sec. 4, T25W, R14E, New Madrid County

Site Number 2: Location: SW ¼, Sec. 4, T26N, R14E, Scott County

Site Number 3: Location: SE ¼, NE ¼, S ½, SW ¼, N ½, NW ¼, Sec 22, T25N, R14E, and the SE ¼, SW ¼, Sec 15, T25N, R14E, New Madrid County

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001 – Emergency discharge from storage basin(s) lagoon(s) - Land Application Sites (Note 1)						
Flow	MGD	*			once/day	24 hr. estimate
Biochemical Oxygen Demand$_5$	mg/l	65			once/week	grab
Total Suspended Solids	mg/l	110			once/week	grab
Ammonia nitrogen as N	mg/l	***			once/week	grab
MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE January 28, 2007 .						
Outfall #001 - Land Application Operational Monitoring (Notes 2 & 3)						
Volume Applied	gallons	*			Daily	total
Application Area	acres	*			Daily	total
Application Rate	gallons	*			Daily	total
Rainfall	inches	*			Daily	total
MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE January 28, 2007 .						
Outfall #001 - Land Applied Biosolids (Notes 4, 5 & 6)						
Total Kjeldahl Nitrogen as N	mg/kg	*			once/quarter	composite
Ammonia Nitrogen as N	mg/kg	*			once/quarter	composite
Nitrate/Nitrite as N	mg/kg	*			once/quarter	composite
Total Phosphorous	mg/kg	*			once/quarter	composite
MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY THE FIRST REPORT IS DUE January 28, 2007 .						
Outfall #001 - Soil Monitoring, Land Application Sites (Notes 6 & 7)						
Ammonia Nitrogen as N	mg/kg$^+$	*			once/3 years	composite
Nitrate/Nitrite as N	mg/kg$^+$	*			once/3 years	composite
Available Phosphorus as P (Bray 1-P method)	mg/kg$^+$	*			once/3 years	composite
pH - Units	SU	**			once/3 years	composite
MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY THE FIRST REPORT IS DUE January 28, 2007 .						

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Part I STANDARD CONDITIONS DATED October 1, 1980, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

+ Dry Weight Basis
* Monitoring requirement only.
** pH is measured in pH units and is not to be averaged. The pH is to be maintained at or above 6.0 pH units.
*** Comply with water quality standards per Special Conditions #3.

Note 1 - No-discharge facility requirements. Biosolids shall be stored and land applied during suitable conditions so that there is no-discharge from the storage basin(s), lagoon(s) or land application site(s). An emergency discharge may occur when excess biosolids have accumulated above feasible land application rates due to precipitation exceeding the 1-in-10-year 365 day rainfall or the 25- year 24-hour storm event. Samples shall be taken during the discharge event.

Note 2 - Records shall be maintained and summarized into an annual operating report which shall be submitted by January 28th of each year for the previous calendar year period. The report shall include the following:

a. Record of maintenance and repairs performed during the year, average number of times per month the facility is checked to see if it is operating properly, and description of any unusual operating conditions encountered during the year;
b. The number of days the storage basin(s) lagoon(s) has discharged during the year, the discharge flow, the reasons discharge occurred and effluent analysis performed; and
c. A summary of the land application operations including the number of days of land application for each month, the total volume applied per acre, the total acres used, crops grown, crop yields per acre, the application rate in gallons (cubic feet)/acre per day and for the year, the monthly and annual precipitation received at the facility and summary of testing results.

Note 3 – Storage basin freeboard(s) shall be reported as water level in feet below the overflow level.

Note 4 – Biosolids shall be sampled when loading into the transportation vehicle.

Note 5 - Monitor once per quarter in the months of March, May, July and September.

Note 6 - A composite Sample shall be made up from a minimum of four grab Samples.

Note 7 - Sample the top 6 to 12 inches of soil. Composite samples shall be collected from each land application site and each soil type in accordance with University of Missouri publication G9110, Sampling Your Soil for Testing. Testing shall conform to Soil Testing Procedures for North Central Region (North Dakota Agricultural Experiment Bulletin 499-Revised); Methods of Soil Analysis, American Society of Agronomy, Inc; Soil Testing and Plant Analysis, Soil Science Society of America Inc; EPA Methods; or other methods approved by the department.

C. SPECIAL CONDITIONS

1. Report as no-discharge when a discharge does not occur during the report period.

2. Outfalls must be marked in field and on the topographic site map submitted with the permit application.

C. SPECIAL CONDITIONS (continued)

3. Water Quality Standards
   a. Discharges to waters of the state shall not cause a violation of water quality standards rule under 10 CSR 20-7.031, including both specific and general criteria.
   b. General Criteria. The following general water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
      (1) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
      (2) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
      (3) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
      (4) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
      (5) There shall be no significant human health hazard from incidental contact with the water;
      (6) There shall be no acute toxicity to livestock or wildlife watering;
      (7) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
      (8) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.

4. This permit may be reopened and modified, or alternatively revoked and reissued, to:
   (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
      (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
      (2) controls any pollutant not limited in the permit.
   (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri’s Water Quality Standards.
   (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri’s list of waters of the state not fully achieving the state’s water quality standards, also called the 303(d) list.

   The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.

5. Annual Report.
   An annual report is required in addition to the quarterly reporting under Section A of this permit. The annual report shall be submitted by January 28 of each year for the previous growing season from October 1 through September 30 or an alternate 12 month period approved by the Department and listed in the Operation and Maintenance Manual. This report shall be submitted using report forms approved by the Department and shall include a summary of the monitoring and record keeping required by this permit.

C. SPECIAL CONDITIONS (continued)

6. Biosolids Storage and Land Application System.

a. Discharge Reporting. Any unauthorized discharge from the storage basin(s)lagoon(s) and land application system and/or areas shall be reported to the department as soon as possible but always within 24 hours. Discharge is allowed only as described in the Facility Description and Effluent Limitations sections of this permit.

b. The land application of biosolids shall be operated as a no-discharge facility. Biosolids means an organic fertilizer product from solid, semi-solid, or liquid residue or sludge removed during the treatment process.

c. Permittee shall operate the land application system in accordance with the design parameters listed in the Facility Description section of this permit:

No-Discharge System. When the Facility Description is No-Discharge, Biosolids must be stored and land applied at appropriate times. There shall be no-discharge from the land application site(s) or storage basin(s) except due to precipitation exceeding either the 1-in-10 year rainfall event for the design storage period or the 25-year-24-hour rainfall event.

d. Storage Basin(s) Operating Levels - No-discharge Systems. The minimum and maximum operating water levels for the storage basin(s) shall be clearly marked. Each lagoon shall be operated so that the maximum water elevation does not exceed one foot below the overflow point except due to exceedances of the 1-in-10 year or 25-year-24 hour storm events. Wastewater shall be land applied whenever feasible based on soil and weather conditions and permit requirements. Storage basin(s) shall be lowered to the minimum operating level prior to each winter by November 30.

e. Emergency Spillway. Lagoons and earthen storage basins shall have an emergency spillway to protect the structural integrity of earthen structures during operation at near full water levels and in the event of overflow conditions. The spillway shall be at least one foot below top of berm. The department may waive the requirement for overflow structures on small existing basins.

f. General Application Requirements. The land application system shall be operated so as to provide uniform distribution of biosolids over the entire application site. Complete ground cover of vegetation shall be maintained on the application site unless the system is approved for row crops. The biosolids shall be land applied only during daylight hours.

g. Saturated/Frozen Conditions. There shall be no application during frozen, snow covered, or saturated soil conditions.

h. Buffer Zones. There shall be no application within 300 feet of any down gradient pond, lake, sinkhole, losing stream or water supply withdrawal; 100 feet of gaining streams or tributaries; 150 feet of dwelling; or 50 feet of the property line.

i. Public Access Restrictions. Public access shall not be allowed to the application site(s).

j. Equipment Checks during Irrigation. The transportation and application equipment and application site shall be visually inspected at least once/day during land application to check for equipment malfunctions and runoff from the application site.

C. SPECIAL CONDITIONS (continued)

10. Plant Available Nitrogen (PAN) Loading Rates

a. Wastewater, sludge and fertilizer nitrogen applications shall not exceed the crop nitrogen requirements based on realistic crop yield goals and the Plant Available Nitrogen (PAN) method. The wastewater application rate shall be calculated as follows:

PAN = CNR - SRN - CFN

WHERE: CFN = Commercial Fertilizer Nitrogen applied
CNR = Crop Nitrogen Requirement
PAN = Plant Available Nitrogen in wastewater and sludges
SRN = Soil Residual Nitrogen

b. Plant Available Nitrogen(PAN) in pounds/acre for wastewater is calculated as follows:

PAN = [mg/L Total N] x [0.226] x [inch/acre/year] x [Availability Factor].

WHERE: Total N = [Ammonia as N] + [Organic Nitrogen as N] + [Nitrate as N].
Organic Nitrogen = [Total Kjeldahl Nitrogen as N] - [Ammonia as N].

c. Plant Available Nitrogen (PAN) Availability factors for wastewater and sludges are as follows:

Type of Nitrogen	Surface Application	Immediate Incorporation or Subsurface Injection
Ammonia	0.6	0.9
Organic	0.4 - 0.7*	0.4 - 0.7*
Nitrate	0.9	0.9

***Note**: For primary/secondary wastewater treatment sludges and anaerobic stored biosolids, the organic nitrogen availability based on time after land application is: 0.4 for year 0-1, 0.2 for year 1-2 and 0.1 for year 2-3. When applied each year, the constant for year 3 and thereafter is 0.7.

d. Soil Residual Nitrogen (SRN).

For Annual Crops, the nitrogen availability from soil organic matter must be included based on soil CEC and crop season as follows:

SRN in pound N/acre* = [percent organic mater] x Soil Availability Factor

Soil Availability Factor by Soil CEC Ranges and Organic Matter

Growing Season	Organic Matter	CEC # 10	CEC 10-18	CEC >18
Summer	1%	40*	20	10
Winter	1%	20*	10	5

***Note:** If CEC is less than 10 and organic matter is 1.5% or greater, the total SRN is constant at 60 pounds nitrogen for summer and 30 pounds for winter.

For Perennial Crops the SRN is considered zero(0) for purposes of these calculations because the SRN has already been considered in the crop fertilization recommendations in the referenced publications under the paragraph below.

C. SPECIAL CONDITIONS (continued)

10. Plant Available Nitrogen (PAN) Loading Rates (continued)

e. Denitrification Factors. Allowance for about 10% denitrification for moderate to well drained soils is already included within the PAN and SRN tables above. Additional soil denitrification factors for nitrogen may be considered for poorly drained soils based on site specific soil conditions in accordance with NRCS standards. See National Engineering Handbook, Part 651 (AWMFH),Table 11-8.

f. Crop nitrogen requirements shall be based on University of Missouri publication, Soil Test Interpretations and Recommendations Handbook, as revised. PAN calculations, crop yields and crop removal rates shall be listed in the annual report.

g. If a crop is not harvested, the PAN rate shall not exceed 40 lbs./acre/year.

11. Nutrient Management Plan.

a. The permittee shall develop and maintain a Nutrient Management Plan (NMP) to address appropriate nutrient application rates and other applicable factors that are needed to sustain healthy growth of vegetation on the land application sites and minimize discharge of nutrients to waters of the state.
b. The NMP shall conform to guidelines and standards of the USDA, Natural Resources Conservation Service (NRCS) including the National Engineering Handbook and Missouri Field Office Technical Guide.
c. The NMP shall include wastewater testing, soil testing, crop yields, and crop nutrient requirements for at least nitrogen and phosphorus. The plan shall address proposed application rates for all sources of fertilizer, pesticides and soil amendments including wastewater and commercial sources. Realistic crop yields, harvest methods, soil testing, wastewater testing results and nutrient application rates for nitrogen, phosphorus and potassium shall be included. Calculation procedures shall be shown and reference materials indicated.
d. For nitrogen the NMP shall use the Plant Available Nitrogen (PAN) method based on the permit Special Conditions.
e. For phosphorus, the NMP may be based on either crop requirements or water quality protection standards using the soil test phosphorus threshold method or phosphorus index approach.
f. The NMP shall be included in the Operation and Maintenance Manual.
g. The annual report shall include testing results and calculations for nutrients applied and crop removal of nutrients and other pertinent information to verify compliance with the approved NMP.